

Embedded And Electronics Services

Hinduja Tech has experience in embedded and electronics engineering for both hardware and software development. We have delivered projects for leading OEMs and Tier-1s in emerging domains of electric vehicles (e-powertrain, ADAS, body electronics, cluster and chassis systems by ensuring reliable, safe and secure aspects).

Hardware Development

Since electronics hardware monitors critical areas of vehicle performance, we undertake a thorough analysis of the unique vehicle requirements and design accordingly. We offer automotive embedded electronics engineering services in the entire product development process, from benchmarking to validation and testing.

- Hardware design C calculations
- Components selection
- Bill of material generation
- Gerber file generation
- Circuit schematic capture
- Circuit simulations
- Worst-case analysis
- PCB layout
- Board bring-up testing

- Environmental qualifications

Software Development

We offer automotive-embedded electronics engineering services in the entire product development process, from benchmarking to validation and testing.

Application Software

- Model-based development for AUTOSAR/non-AUTOSAR platform
- Modules/component development in MATLAB, simulink, state flow as per MAAB guidelines
- Migration activity - legacy code to executable specification
- Optimization – design, code, memory (RAM/ROM)
- Model compliance to ISO 26262
- Floating to fixed point conversion
- Code generation using embedded coder
- Static check analysis using polyspace
- Model verification C validation – MIL, SIL, PIL, coverage testing
- Automation
- Rapid prototyping

Basic Software

- Migration of automotive application from legacy architecture to AUTOSAR
- AUTOSAR MCAL development and testing

- MCAL driver development
- Creation of test environment for testing each MCAL component
- Third-party boot loader configuration
- AUTOSAR 3.X, 4.X compliant ECU software development
- AUTOSAR RTE and BSW configuration C integration
 - Integration of AUTOSAR BSW stack (basic software) with the application layer
 - Integration of AUTOSAR RTE (run-time environment) with the application layer
- DaVinci configurator/developer tool
- Static analysis
- Unit level testing

ystem Engineering

In the mobility world, system engineering is an interdisciplinary approach carried out to develop highly complex vehicle systems. At Hinduja Tech, we have some of the finest engineers who can transform your idea into mobility. Hinduja Tech automotive embedded electronics engineering provides services from concept to product development phases of vehicle development, focusing on the holistic vehicle system level.

- Requirement gathering
- Benchmarking
- System architecture
- Designs and concepts

- Vehicle architecture and harnessing

Reliable, Safe, Secure s ASPICE Complaint

Hinduja Tech proactively manages to deliver the product on

demanding timelines owing to adherence to international quality standards and proven project management methodologies.

- Process/standard compliance
- Safety ISO 26262
- MISRA
- ASPICE
- ISO 21434
- Agile/Scrum
- Regulations and certifications support
- V model-based development
- Automotive standards
- Software quality processes

Project Management

- Series production projects
- Proto sample projects
- Change management
- Value engineering
- Costing

- Agile scrum methodology

Verification s Validation

We offer complete verification C validation services covering the "V" model methodology. This applies to both vehicle level, system level, and component level validation from unit testing to function testing using our state-of-the-art embedded labs and HIL test facility.

Testing Processes

- Test strategy development and execution
- Static and dynamic analysis
- Unit testing
- MIL/SIL/HIL testing
- Diagnostic testing
- Integration testing
- System testing
- Vehicle integration testing
- DVP testing
- CAN /LIN/Flex ray conformance testing
- Test automation tools
- Regression testing
- User acceptance testing
- Test bench construction